



## FACT SHEET

### Site 24 Groundwater Cleanup Installation Restoration Program Former Marine Corps Air Station, El Toro

June 2005



## Installation of Wells and Piping for Cleanup of Solvent-Contaminated Groundwater Begins

**T**his fact sheet serves to announce that the first phase of the remedial action activities to cleanup groundwater contaminated with solvents containing volatile organic compounds (VOCs) at Installation Restoration Program Site 24, the VOC Source Area, is commencing. This project is part of the Irvine Desalter Project that consists of two separate water systems which will extract and treat VOC-contaminated groundwater from Site 24 and off-station areas. Cleanup activities are being conducted in accordance with the 2001 settlement agreement between the U.S. Department of Justice, on behalf of the Marine Corps, and the Orange County Water District and the Irvine Ranch Water District, and the Record of Decision that was finalized in 2002 which documented regulatory agency concurrence for groundwater cleanup. Project progress has been shared regularly with community members at the bimonthly meetings of the MCAS El Toro Restoration Advisory Board.

The Irvine Desalter Project consists of two separate water systems. The nonpotable system will extract and treat VOC-contaminated groundwater from Site 24 and areas within the regional plume that have VOC concentrations above drinking water standards. The treated water will be used for reclamation purposes such as watering golf courses or green belts. The potable system will extract and treat groundwater from outside the VOC plume. This water will be treated to remove nitrates and total dissolved solids, which is typically done for water that is used for drinking water. The Irvine Desalter Project and the settlement agreement help ensure that the Marine Corps' groundwater cleanup is safely and effectively coordinated with the water supply objectives of the water districts.

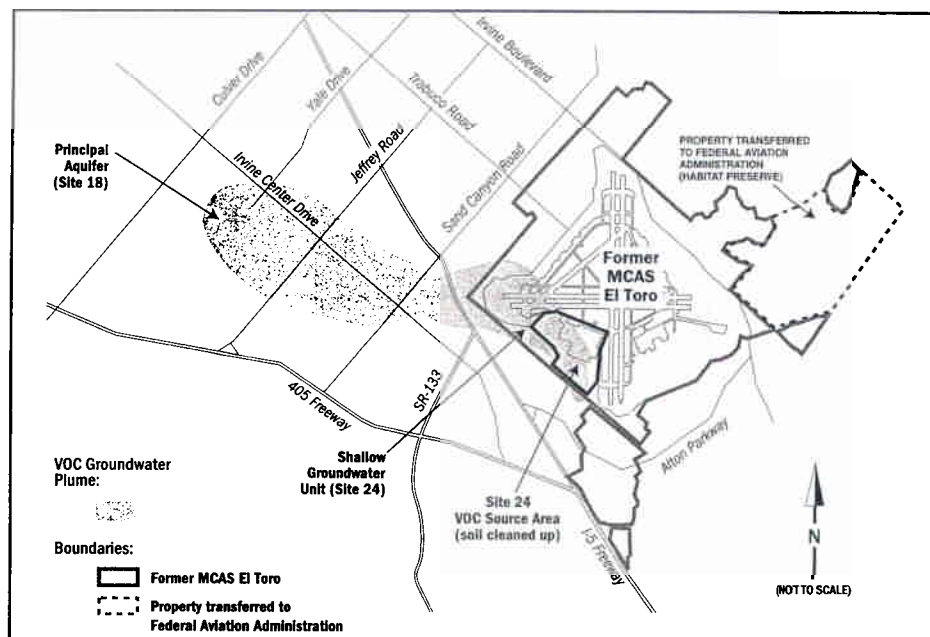
## Site Description

**P**ast operations and practices at Former MCAS El Toro have contributed to soil and groundwater VOC contamination. Industrial activities at Site 24, such as dust suppression with waste liquids, paint stripping, degreasing, vehicle and aircraft washing, and waste disposal activities involved the use of solvents containing VOCs such as trichloroethene (TCE) and tetrachloroethene (PCE). Waste solvents may have reached the surface or subsurface through leakage, runoff, storm drains, or direct application to the soil and are believed to be the source of VOCs in the regional groundwater. The precise origin, nature, and use of

TCE released at the site and the circumstances and quantities of individual releases are not documented. TCE usage at Former MCAS El Toro is believed to have been discontinued in the mid-1970s.

Past chemical releases contaminated soil and migrated downward into the groundwater which resulted in a plume of VOC-contaminated groundwater that extends approximately 3 miles to the west of the former station. Site 24 and the groundwater plume are shown on page 2. Groundwater cleanup of the plume will address two distinct areas: 1) the shallow

groundwater unit or SGU where the shallow VOC plume is located (Site 24); and 2) the deep VOC plume in the principal aquifer (Site 18). The VOC plume begins on-station in the shallow groundwater and extends into the deep groundwater towards Culver Drive in Irvine. The figure on page 3 shows an underground view at Site 24 with the area of VOCs in soil that has been cleaned up and the VOC plume.



## Remedial Action Objectives for Groundwater

**R**emedial action objectives guided the development of cleanup actions being taken to address VOC-contaminated groundwater. This fact sheet focuses on the first phase of the Site 24 construction. This phase includes construction of extraction wells and the conveyance system. The second phase will consist of the groundwater treatment system. However, to best understand the overall objective for groundwater, remedial action objectives for both Sites 18 and 24 are listed below:

- Reduce concentrations of VOCs to federal or state cleanup levels in the shallow groundwater unit and in the principal aquifer (regional groundwater).
- Prevent VOCs at concentrations above cleanup levels from migrating beyond the shallow groundwater unit into principal aquifer.
- Contain the migration of VOCs above cleanup levels in the principal aquifer.
- Prevent use of groundwater containing VOCs at concentrations above cleanup levels for domestic use and other purposes.

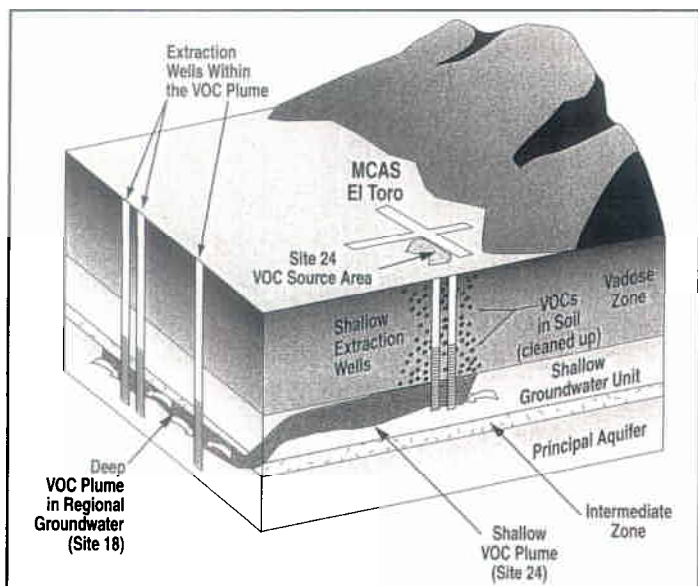
## Pre-Design Investigation

**A** pre-design investigation was conducted to further define the contaminant plume and aquifer characteristics. Obtaining this information is necessary for completing the design of the Site 24 groundwater extraction system. The pre-design investigation included installation of two monitoring wells and ten extraction wells, groundwater sampling, and aquifer tests to estimate sustainable pumping rates. Information obtained helped to refine groundwater modeling and determine the best locations for extraction and monitoring wells. This investigation also examined the potential for enhancing groundwater treatment by using soil vapor extraction (SVE) technology at Site 24. Additionally, areas along the proposed route of the conveyance piping were surveyed and examined by digging "potholes" to identify underground utilities and obstructions.

Investigation results determined that SVE would be a cost-effective option to implement at

### Internet Connection

For more information on Former MCAS El Toro environmental restoration activities, visit the web site at [www.navybracpmo.org](http://www.navybracpmo.org)



*Underground View of Site 24 and the VOC Plume.*

the source area (areas with the highest VOC contamination in groundwater) after the groundwater table is lowered by extraction. As groundwater is removed, some VOCs could remain in the soil where groundwater was previously present. SVE effectively removes VOCs from the soil in areas where groundwater was present prior to its extraction and subsequent treatment. VOCs are removed when a vacuum is applied to extraction wells located above the groundwater table. The extracted VOC vapors are conveyed to the surface and passed through a granular activated carbon filter system. VOC vapors are trapped on the filters and clean air is dispersed to the atmosphere.

## Remedial Design

**C**leanup of the VOC plume will be accomplished by applying pump and treat technologies using groundwater extraction wells. The remedial design for shallow VOC plume at Site 24 incorporates results from computer modeling of site-specific and groundwater flow and the results of the pre-design investigation. This design includes engineering specifications for the extraction wells, pumping rates, and the piping network that will convey contaminated groundwater from the extraction wells to the treatment plant. The alignment of the conveyance system has been designed to

protect and minimize relocation of existing subsurface utilities. Extraction wells have been placed at locations that cost-effectively optimize pumping performance. At Site 24, the well system will initially be comprised of 35 extraction wells and 64 monitoring wells. Approximately 11,000 feet of conveyance piping will be installed on-station at Former MCAS El Toro.

## Project Schedule

**A**t Site 24, it is anticipated that installation of all extraction wells, monitoring wells, control systems, utilities, conveyance piping, and water storage tanks will be completed by October 2005. Start-up testing of the non-potable system will commence in November 2005 and treatment of VOC-contaminated water will be done with portable equipment until the treatment plant, that will be located adjacent to the former station near Site 24, is completed in August 2006. The design of the Site 24 treatment plant is nearing completion as part of the Irvine Desalter Project and will be covered in a separate fact sheet.

## Soil Cleanup Addressed Separately

**C**leanup of VOC-contaminated soil at Site 24 was addressed separately from the groundwater. Soil cleanup has been completed. A Proposed Plan that documents the No Further Action recommendation for soil is scheduled to be issued to the public in early July 2005. The public will have the opportunity to comment on the No Further Action recommendation for soil during the 30-day public comment period that runs July 14 through August 12, 2005. A public meeting will be held at 6:30 p.m., Wednesday, July 27, 2005, at Irvine City Hall, Conference and Training Center. Community members will have the opportunity comment on the No Further Action recommendation for soil at the meeting or may submit comments in writing to Mr. F. Andrew Piszkin, BRAC Environmental Coordinator, MCAS El Toro, no later than August 12, 2005, see back page for contact information. After the public comment period is concluded, comments received will be incorporated into a final Record of Decision that explains and formalizes the final decision for soil at Site 24.



## Project Contacts

If you have any questions or concerns about environmental activities at the former station, please feel free to contact any of the following project representatives:

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## Mailing List Coupon

If you would like to be put on the mailing list to receive information about environmental restoration activities at Former MCAS El Toro, please fill out the coupon and send it to Mr. Bob Coleman, Brown and Caldwell, 9665 Chesapeake Drive, Suite 201, San Diego, CA 92123. If you prefer, e-mail the information requested below to [rcoleman@brwnald.com](mailto:rcoleman@brwnald.com)

☐ Add me to the MCAS El Toro Installation Restoration Program mailing list

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Name

Street

City

State  Zip Code

Affiliation (optional)

Telephone

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